AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.   (currently amended): A method of forming an optical waveguide in the interior of a pure silica glass comprising:

focusing femtosecond laser pulses on said glass to form a high refractive index region,

wherein a mode field diameter of said optical waveguide is controlled by changing the pulse width of said femtosecond laser pulses; ~~and~~

wherein the pulse width of said femtosecond laser pulses is in a range of 210 to 420 fs; and

the femtosecond laser pulses are condensed by a condenser having a numerical aperture of approximately 0.5.

2.   (original):   A method of forming an optical waveguide according to claim 1 wherein the pulse width of said femtosecond laser pulses at the focal point is not greater than 420 fs.

Claim 3 (canceled).

4.   (currently amended): A method of forming an optical waveguide in the interior

of a pure silica glass comprising:

focusing femtosecond laser pulses on said glass to form a high refractive index region,

wherein an aspect ratio of the mode field diameter of said optical waveguide is controlled

by changing the peak power of said femtosecond laser pulses at the focal point; and

the femtosecond laser pulses are condensed by a condenser having a numerical aperture

of approximately 0.5.

5.   (original):   A method of forming an optical waveguide according to claim 4

wherein the peak power of said femtosecond laser pulses at the focal point is not greater than 8.7

$x\ 10^{11}\ W/\ cm^2$.

6.   (currently amended): A method of forming an optical waveguide in the interior

of a pure silica glass comprising:

focusing femtosecond laser pulses to form a high refractive index region,

wherein both a mode field diameter and an aspect ratio of the mode field diameter of said

optical waveguide is controlled by changing both the pulse width of said femtosecond laser

pulses and the peak power of said femtosecond laser pulses at the focal point; and

the femtosecond laser pulses are condensed by a condenser having a numerical aperture

of approximately 0.5.

7.   (original):   A method of forming an optical waveguide according to Claim 6 wherein

the pulse width of said femtosecond laser pulses is not longer than 490 fs; and

the peak power of said femtosecond laser pulses at the focal point is not greater than 8.7 x 10^{11} W/ cm^2.

8.   (original):   A method of forming an optical waveguide according to Claim 6 wherein

the pulse width of said femtosecond laser pulses are not longer than 420 fs; and

the peak power of said femtosecond laser pulses at the focal point is not greater than 8.7 x 10^{11} W/ cm^2.

9.   (original):   A method of forming an optical waveguide according to Claim 6 wherein

the pulse width of said femtosecond laser pulses is in range of 210 fs to 420 fs; and

the peak power of said femtosecond laser pulses at the focal point is not greater than 8.7 x 10^{11} W/ cm^2.

10.   (currently amended):   An optical waveguide which is formed by using a method according to any one of claims 1 to 2 and 4 to 9.

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11.   (currently amended): An optical waveguide which is formed by using a method

according to any one of claims 1 to 2 and 4 to 9 wherein:

a mode field diameter of said waveguide is in a range of 10 to 14 μm;

and an aspect ratio of the mode field diameter of said optical waveguide is in a range of

0.9 to 1.1.

12   (new): An optical waveguide which is formed by using a method according to

any one of claims 1 to 2 and 4 to 9 wherein:

the pure silica glass in which the waveguide is formed has a thickness of approximately 1

mm.